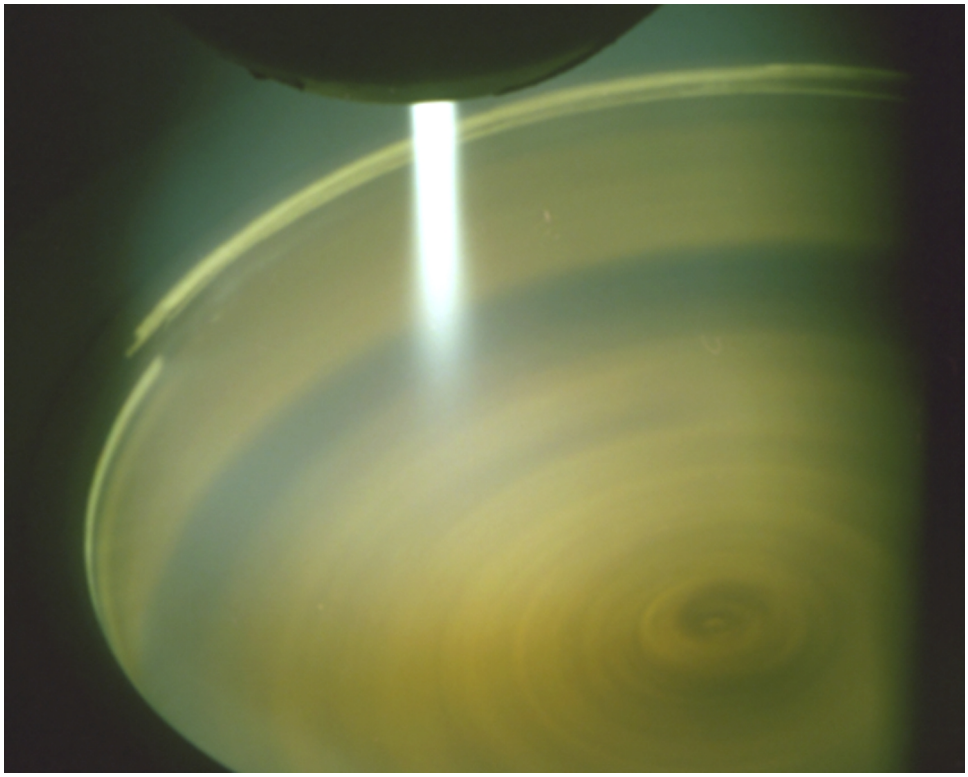
PLASMA ARC



A 150-kW plasma arc is transferred from the torch to waste material contained in a rotating ceramic crucible

National and international environmental laws and regulations significantly impact the Navy's ability to conduct its mission. For example, Congress directed the Navy to fully comply with Annex V of the MARPOL international maritime treaty, which dictates that no discharge of solid waste be made into designated special areas. These areas include most strategically vital bodies of water. It is anticipated that restricting the offboard discharge of aqueous waste will also be implemented. The Naval Research Laboratory (NRL) has established a 150-kW plasma arc facility to investigate high-temperature pyrolysis of simulated shipboard mixed solid and aqueous waste. Diagnostic techniques such as mass spectrometry, optical emission spectroscopy, and laser-based spectroscopies are being used to examine the plasma chemistry and gaseous effluents to establish optimum processing parameters The research at NRL will significantly contribute to the design of a demonstration shipboard plasma arc system to be constructed as part of a Navy Advanced Technology Demonstration project scheduled to begin in FY1997.

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